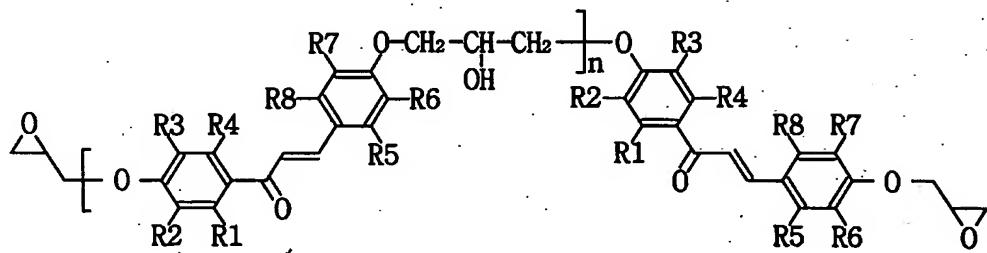


WHAT IS CLAIMED IS:

1. A compound comprising an epoxy group and a chalcone group represented by the following formula:

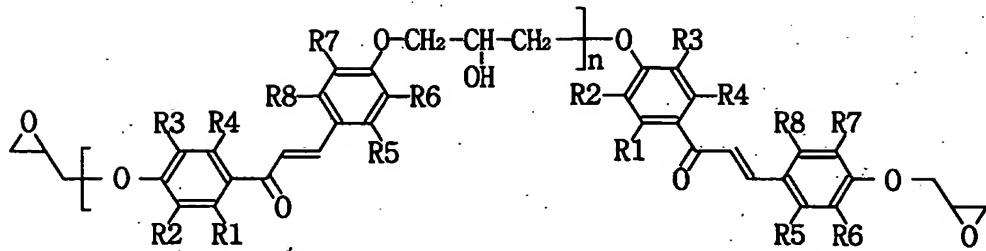


5 wherein n is an integer from 1 to 10,000 and each of R₁, R₂, R₃, R₄, R₅, R₆, R₇ and R₈ is selected from a group consisting of a hydrogen atom, alkyl group, alkoxy group, halogen atom and nitro group.

10 2. The compound according to claim 1, wherein the compound has a weight average molecular weight of about 800 to about 20,000.

3. A process for preparing a compound including an epoxy group and a chalcone group comprising:

15 reacting bis(4-4'-hydroxy) chalcone with epichorohydrin in the presence of an alkali metal salt to synthesize a compound represented by the following formula:



wherein n is an integer from 1 to 10,000 and each of R₁, R₂, R₃, R₄, R₅, R₆, R₇ and R₈ is selected from a group consisting of a hydrogen atom, alkyl group, alkoxy group, halogen atom and nitro group.

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4. The process of claim 3 further comprising reacting bis[4,4'-(2-2'-tetrahydro-2H-pyranoxy)]chalcone with a paratoluene sulfonic acid in the presence of an alcohol to synthesize the bis(4-4'-hydroxy) chalcone.

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5. The process of claim 4 further comprising reacting 4-(2-tetrahydro-2H-pyranoxy) acetophenone with 4-(2-tetrahydro-2H-pyranoxy) benzaldehyde in the presence of an alkali metal salt to synthesize the bis[4,4'-(2-2'-tetrahydro-2H-pyranoxy)]chalcone.

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6. The process of claim 5 further comprising reacting 4-hydroxy benzaldehyde with 3,4 dihydro-2H-pyran to synthesize the 4-(2-tetrahydro-2H-pyranoxy) benzaldehyde.

7. The process of claim 5 further comprising reacting 4-hydroxy acetophenone with 3,4 dihydro-2H-pyran to synthesize the 4-(2-tetrahydro-2H-pyranoxy) acetophenone.

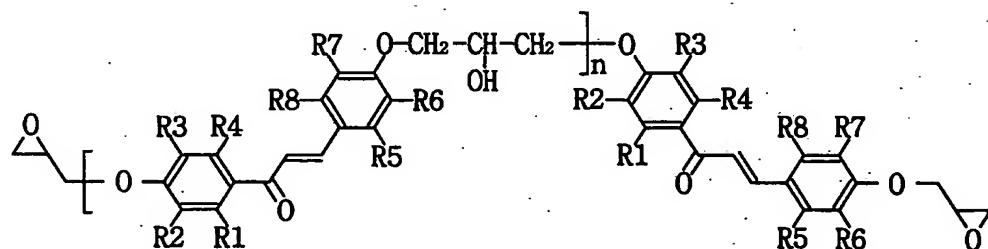
5 8. The process of claim 3, wherein the compound has a weight average molecular weight of about 800 to about 20,000.

9. The process of claim 3, wherein the alcohol is ethanol.

10 10. The process of claim 3, wherein the alkali metal salt is sodium hydroxide or potassium hydroxide.

11. A resist composition comprising:

15 (a) a compound comprising an epoxy group and a chalcone group represented by the following formula:



wherein n is an integer from 1 to 10,000 and each of R₁, R₂, R₃, R₄, R₅, R₆, R₇ and R₈ is selected from a group consisting of a hydrogen atom, alkyl group, alkoxy group, halogen atom and nitro group;

(b) a curing agent; and

5 (c) an organic solvent.

12. The resist composition of claim 11, wherein the resist composition includes about 5 to about 35 parts by weight of the compound, about 0.01 to about 5 parts by weight of the curing agent, and about 60 to about 90 by weight of the organic solvent.

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13. The resist composition of claim 11, wherein the organic solvent is propylene glycol monomethyl ether acetate, ethyl ethoxy acetate, or cyclohexanone.

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14. The resist composition of claim 11 further comprising an acrylate resin.

15. The resist composition of claim 14, wherein the resist composition includes about 5 to about 35 parts by weight of a combination of the acrylate resin and the compound, about 0.01 to about 5 parts by weight of the curing agent, and about 60 to about 90 by weight of the organic solvent.

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16. The resist composition of claim 11 further comprising a pigment, wherein the pigment is dissolved in a solvent.

17. The resist composition of claim 16 further comprising a dispersant for dispersing the pigment in the photoresist composition.

18. The resist composition of claim 11 further comprising a photo-initiator.

15 19. The resist composition of claim 18, wherein the photo-initiator is benzyl dimethyl ketal, diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide, or bis(trichloromethyl)-s-triazine derivative.

20. The resist composition of claim 11, wherein the resist composition is used in patterning a color filter in a liquid crystal display.

21. The resist composition according to claim 11, wherein the 5 compound has a weight average molecular weight of about 800 to about 20,000.

22. The resist composition according to claim 16, wherein the pigment is a red, blue, green, yellow, or violet pigment.

10 23. The resist composition according to claim 11, wherein the curing agent is a dipentaerithritol hexaacrylate or a trimethylolpropane trimethacrylate.

15 24. A method for forming a color resist pattern, comprising the steps of: applying a layer of a first color resist composition to a black matrix on a substrate to form a first color resist layer, wherein the first color resist composition includes a compound having a chalcone and an epoxy group, a curing agent, an organic solvent, and a pigment;

baking the first color resist layer, wherein the organic solvent is evaporated;

disposing a first mask having patterns over the first color resist layer;
exposing a portion of the first color resist layer through the first mask;
developing the exposed first color resist layer, wherein the exposed portion of the first color resist is dissolved in a developing solution; and
5 heating the substrate with the developed first color resist layer, thereby forming a first color resist pattern.

25. The method of claim 24, wherein the black matrix includes a single or double layer of chromium oxide.

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26. The method of claim 24, wherein baking the layer of the color resist composition is performed at a temperature of about 80 to about 130°C.

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27. The method of claim 24, wherein the developing solution is hydroxides of alkali metals, ammonium hydroxides, or tetramethyl ammonium hydroxides.

28. The method of claim 24 further comprising forming at least a second color resist pattern over the first color resist pattern, wherein forming the at least second color resist pattern comprises the steps of:

5 applying a layer of a second color resist composition to the first color resist pattern to form a second color resist layer, wherein the second color resist composition includes a compound having a chalcone and an epoxy group, a curing agent, an organic solvent, and a pigment;

baking the second color resist layer, wherein the organic solvent is evaporated;

10 disposing a second mask having patterns over the second color resist layer;

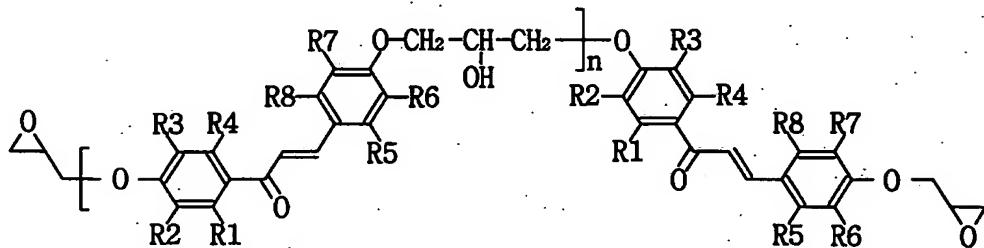
exposing a portion of the second color resist layer through the second mask;

15 developing the second color resist layer, wherein the exposed portion of the second color resist is dissolved in a developing solution; and

heating the substrate with the developed second color resist layer, thereby forming a second color resist pattern.

29. The method of claim 24, wherein heating of the substrate is performed at a temperature in the range of about 90 to about 140°C.

30. The method of claim 24, wherein the compound having a chalcone and an epoxy group is represented by the following formula:



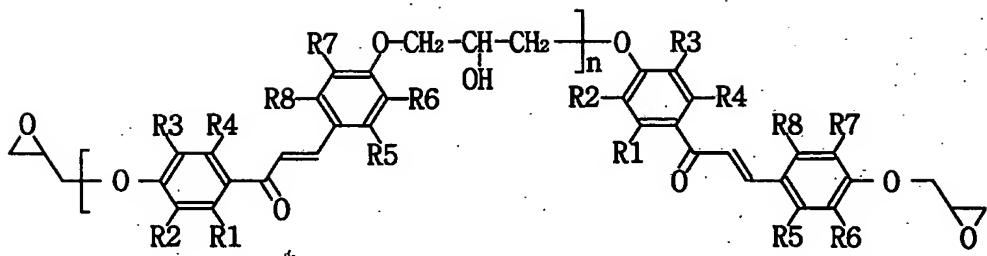
5 wherein n is an integer from 1 to 10,000 and each of R₁, R₂, R₃, R₄, R₅, R₆, R₇ and R₈ is selected from a group consisting of a hydrogen atom, alkyl group, alkoxy group, halogen atom and nitro group.

31. The method of claim 24, wherein the pigment is a red, blue, green, yellow, or violet pigment.

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32. The method of claim 30, wherein the compound has a weight average molecular weight of about 800 to about 20,000.

15 33. The method of claim 28, wherein the compound having a chalcone and an epoxy group is represented by the following formula:



wherein n is an integer from 1 to 10,000 and each of R₁, R₂, R₃, R₄, R₅, R₆, R₇ and R₈ is selected from a group consisting of a hydrogen atom, alkyl group, alkoxy group, halogen atom and nitro group.

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34. The method of claim 33, wherein the compound has a weight average molecular weight of about 800 to about 20,000.

35. The method of claim 28, wherein the pigment is a red, blue, 10 green, yellow, or violet pigment.